

In the Claims:

Please cancel claims 81-100 and add new claims 101 and 102. Please amend claims 21, 69 and 80. All claims are shown below in accordance with the PTO's waiver of 37 C.F.R. 1.121 (a)-(d).

Claims 1-20 (Cancelled.)

21. (Currently Amended) A plant ~~cell~~ comprising:

F₂ (a) plant cells containing nucleotide sequences encoding a biologically functional multimeric protein comprising at least two different polypeptides not normally produced by plants, wherein each nucleotide sequence encoding a polypeptide of the multimeric protein encodes a leader sequence forming a secretion signal that is cleaved from said polypeptide following proteolytic processing; and

(b) biologically functional multimeric protein encoded by said nucleotide sequences and resulting from assembly of said at least two different polypeptides.

Claims 22-~~23~~ (Cancelled.)

24. (Previously added) The plant of claim 21 wherein the multimeric protein comprises a ligand binding polypeptide.

25. (Previously added) The plant of claim 24 wherein the ligand is an antigen.

26. (Previously added) The plant of claim 21 wherein the multimeric protein forms a binding site specific for a predetermined antigen.

27. (Previously added) The plant of claim 21 wherein the multimeric protein is an enzyme.

28. (Previously added) The plant of claim 21 wherein the multimeric protein is an abzyme.

29. (Previously added) The plant of claim 21 wherein the multimeric protein contains one or more disulfide bonds.

30. (Previously amended)The plant of claim 21 wherein the polypeptides of the multimeric protein are joined by hydrogen bonding.

31. (Previously amended) The plant of claim 21 wherein the multimeric protein comprises an immunoglobulin.

32. (Previously amended) The plant of claim 31 wherein the immunoglobulin comprises a Fab.

33. (Previously amended) The plant of claim 31 wherein the immunoglobulin comprises a Fab'.

34. (Previously amended) The plant of claim 31 wherein the immunoglobulin comprises a F(ab')₂.

35. (Previously amended) The plant of claim 31 wherein the immunoglobulin comprises a Fv.

36. (Previously amended) The plant of claim 31 wherein the immunoglobulin comprises an antibody.

37. (Previously amended) The plant of claim 31 wherein the immunoglobulin contains a paratope.

38. (Previously added) The plant of claim 21 wherein the multimeric protein comprises a glycosylated immunoglobulin molecule free of sialic acid residues.

39. (Previously added) The plant of claim 21 wherein the plant is a dicotyledonous plant.

40. (Previously added) The plant of claim 21 wherein the plant is a monocotyledonous plant.

Claims 41-42 (Cancelled.)

43. (Previously Amended) A plant cell containing nucleotide sequences encoding an antigen-specific immunoglobulin, said nucleotide sequences encoding an immunoglobulin heavy and light chain polypeptide wherein each polypeptide contains a leader sequence that forms a secretion signal; and immunoglobulin encoded by said nucleotide sequences, wherein each leader sequence is cleaved from said immunoglobulin heavy chain and light chain polypeptide following proteolytic processing resulting in assembly of said antigen-specific immunoglobulin.

Claims 45-49 (Cancelled).

50. (Previously amended) The plant cell of claim 43 wherein the immunoglobulin is an abzyme.

Claims 51-53 (Cancelled).

54. (Previously amended) The plant cell of claim 43 wherein the immunoglobulin comprises a Fab.

55. (Previously amended) The plant cell of claim 43 wherein the immunoglobulin comprises a Fab'.

56. (Previously amended) The plant cell of claim 43 wherein the immunoglobulin comprises a F(ab')₂.

57. (Previously amended) The plant cell of claim 43 wherein the immunoglobulin comprises an Fv.

58. (Previously amended) The plant cell of claim 43 wherein the immunoglobulin comprises an antibody.

59. (Previously amended) The plant cell of claim 43 wherein the immunoglobulin contains a paratope.

60. (Previously amended) The plant cell of claim 43 wherein the immunoglobulin is glycosylated, said glycosylation being free of sialic acid residues.

61. (Previously amended) The plant cell of claim 43 wherein the cell is a dicotyledonous plant cell.

62. (Previously amended) The plant cell of claim 43 wherein the cell is a monocotyledonous plant cell.

63. (Previously added) The plant cell of claim 43 derived from an algal plant.

Claims 64-68 (Cancelled).

F₃ 69. (Currently amended) The plant cell of claim 43 wherein the immunoglobulin heavy chain is selected from the group consisting of IgA heavy chain, IgD heavy chain, IgE heavy chain, IgG heavy chain, and IgM heavy chain.

70. (Previously added) The plant cell of claim 43, wherein said heavy chain is an IgA heavy chain.

71. (Previously added) The plant cell of claim 43, wherein said heavy chain is an IgM heavy chain.

72. (Previously added) The plant cell of claim 43, wherein said heavy chain is an IgG heavy chain.

73. (Previously added) The plant cell of claim 43, wherein said leader sequence is non-native to the plant cell.

74. (Previously added) The plant cell of claim 73, wherein said non-native leader sequence is an immunoglobulin leader sequence.

75. (Previously added) The plant cell of claim 72, wherein said non-native leader sequence is a yeast leader sequence.

76. (Previously added) The plant cell of claim 43, wherein said leader sequence is a plant leader sequence.

77. (Previously added) The plant cell of claim 43 wherein said cell is from a tobacco plant.

78. (Previously added) The plant of claim 21, wherein said plant is an algal plant.

79. (Previously added) A plant comprising the plant cell of claim 43.

80. (Currently Amended) A plant cell ~~derived~~ obtained from the plant of claim 21.

Claims 81-100 (Cancelled).

101. (New) The plant of claim 21, wherein said multimeric protein is present at a level of at least 56 ng/mg of total protein in an extract of said plant.

F4

F4
cat

102. (New) The plant of claims 43, wherein said antigen specific immunoglobulin is present at a level of at least 56 ng/mg in total protein in an extract of said plant.
